



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,521	10/04/2005	Hannu Nikunen	30-575	7816
23117 7590 02/18/2010 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
PRICE, CARL D				
ART UNIT		PAPER NUMBER		
3749				
MAIL DATE		DELIVERY MODE		
02/18/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/518,521

Applicant(s)

NIKUNEN ET AL.

Examiner

Carl D. Price

Art Unit

3749

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01/14/2010 RCE.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5, 18 and 19 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-14, 16 and 17 is/are rejected.
- 7) ☐ Claim(s) 10 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2010 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **01/14/2010** has been entered.

Response to Arguments

Applicant has presented for consideration independent claims 1 and 6 without amendment.

Applicant's arguments filed **01/14/2010** have been fully considered but they are not persuasive.

In response to the prior art of record cited in the previous examiner's action and in support of the scope of the invention now presented in the amended claims, applicant argues the following:

“..., applicants note that the flue gas from the gas turbine (GT) of JP '705 is not used as primary air for combustion of the fuel introduced into the burner tube. A machine translation of JP '705 is attached for the Examiner's consideration in this regard.”

“The system disclosed in the DE '066 publication comprises a solution tailored for a cement mill, wherein exhaust gas from a gas turbine is used as combustion air in one or several burners of the kiln. In the DE '066 publication the exhaust gas from a gas turbine is, in fact, used as combustion air in the furnace. The solution offered by the DE '066 publication differs from the applicants' claimed invention at least in that in the latter only air needed for stabilizing and forming of the flame (i.e. primary air) is produced in the gas turbine, which does not produce electricity nor heat for purposes other than rotating the turbine itself. In the applicants' claimed invention other air required in the kiln in addition to primary, such as secondary air, bypasses the burner. Typically the secondary air is heated by causing it to contact with the material combusted in the rotary kiln. In certain embodiments of the applicants' system the combustion air is essentially drawn into the kiln through e.g. coolers for a finished product treated in the kiln, such as lime, and only air needed for stabilizing and forming of the flame is

produced in the gas turbine, which does not produce electricity nor heat for purposes other than rotating the turbine itself.” (Highlighting and Underlining Added)

“The DE publication further comprises a fan (17) between the turbine and the burner, while according to some embodiments of the claimed invention, the gas turbine generates the pressure required for compensating for the flow resistances of the burner. The fan is needed because the pressure of the exhaust gas from the turbine may be decreased and the electricity production increased by means of the fan, as the turbine does not have to compensate for pressure drop of the burner. This is important when the total amount of exhaust gas from the turbine(s) is not fed in the burner. Using the fan also restricts the temperature of the exhaust gas from the turbine below 450°C, because exceeding that temperature would mean an increase, in some cases a remarkable increase, both in the price and the power requirement of the fan.”

In response to applicants’ arguments against the references individually (i.e.- “In the DE ‘066 and in JP ‘716 publications, a fan is still needed.”) one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant’s argument that the publication **DE 100 62 066** further comprises a fan (17) between the turbine and the burner, it is noted that the features upon which applicant relies (i.e., the lack of a fan between the turbine and the burner) is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The examiner acknowledges applicant’s argument, supported by a machine translation of **JP 07-208705**, that the flue gas from the gas turbine (GT) of **JP 07-208705** is not used as primary air for combustion of the fuel introduced into the burner tube. However, applicants are reminded that **JP 07-208705** is relied on by the examiner in the rejection to teach the use of “an external turbine flue gas source for the flue gas source” as a suitable alternative flue gas supply for aiding in reducing the formation of NO_x during combustion. **JP 51- 136716** alone uses a flue gas (14) used as primary air for combustion of the fuel introduced into the burner tube by the burner lance, where it is combusted with the fuel as primary air to generate a flame at the

discharge end of the burner tube in the combustion zone of the rotary kiln. Nonetheless, **DE 100 62 066** shows and discloses a burner lance (15) provided for introducing fuel into the burner tube (not referenced) for combustion with primary air to generate a flame at the discharge end (not referenced) of the burner tube, and wherein a flue gas (11, 12, 14) generated by a gas turbine (4) located outside the kiln wall (16) which in turn is directed to the burner tube so that the flue gas is used as primary air for combustion of the fuel introduced into the burner tube by the burner lance where it is combusted with the fuel as primary air to generate a flame at the discharge end of the burner tube in the combustion zone of the rotary kiln.”

Accordingly, while applicant’s arguments have been carefully considered, applicant’s claims do not patentably distinguish applicant’s invention over the prior art of record.

See the examiner’s action herein below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

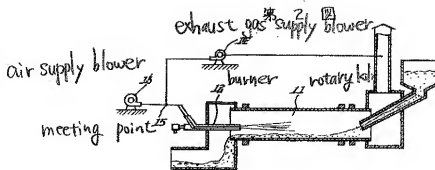
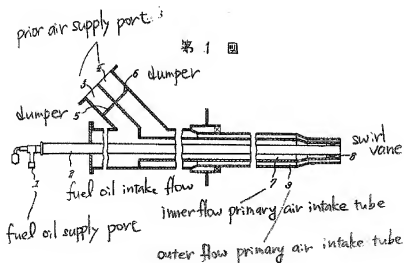
This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims Rejected under 35 U.S.C. 103(a)

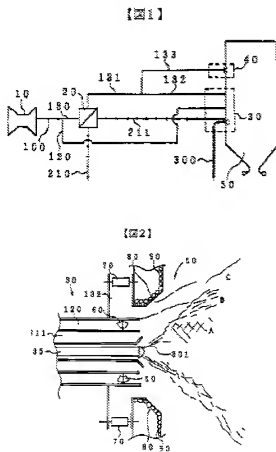
Claims 1-4, 6-14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 51- 136716** (of record), **JP 07-208705** (of record) or **DE 100 62 066** (of record).

JP 51- 136716 shows and discloses a burner lance (2) is provided for introducing fuel into the burner tube (9) for combustion with primary air to generate a flame at the discharge end of the burner tube within the combustion zone of a rotary kiln (11), and wherein a flue gas (14) is directed to the burner tube so that the flue gas is used as primary air for combustion of the fuel introduced into the burner tube by the burner lance where it is combusted with the fuel as primary air to generate a flame at the discharge end of the burner tube in the combustion zone of the rotary kiln.

JP 51- 136716 shows:



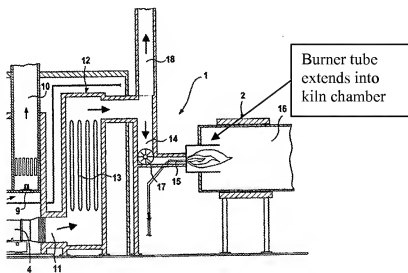
JP 07-208705 teaches, from applicant's same combustion fired furnace field of endeavor, a burner lance (35) is provided for introducing fuel into the burner tube for combustion with primary air to generate a flame at the discharge end (80, 301) of the burner tube, and wherein a flue gas (120) generated by a gas turbine (10) located outside the kiln wall (90) which in turn is directed to the burner tube so that the flue gas is used as air for combustion of the fuel introduced into the burner tube by the burner lance where it is combusted with the fuel as primary air to generate a flame at the discharge end of the burner tube in the combustion zone of the rotary kiln."



DE 100 62 066 teaches, from applicant's same combustion fired furnace field of endeavor, a burner lance (15) is provided for introducing fuel into the burner tube (not referenced) for combustion with primary air to generate a flame at the discharge end (not

referenced) of the burner tube, and wherein a flue gas (11, 12, 14) generated by a gas turbine (4) located outside the kiln wall (16) which in turn is directed to the burner tube so that the flue gas is used as primary air for combustion of the fuel introduced into the burner tube by the burner lance where it is combusted with the fuel as primary air to generate a flame at the discharge end of the burner tube in the combustion zone of the rotary kiln. **DE 100 62 066** discloses a cement manufacturing installation comprises a rotating oven (2) having a rotating pipe (16) heated using a burner (15); and a gas turbine arrangement (4) driven by a generator to produce electrical energy. A pipe connection (12) is arranged between an exhaust gas outlet (11) of the gas turbine arrangement and a combustion air inlet (14) of the burner. The exhaust gas is introduced as combustion air via the pipe connection.

DE 100 62 066 shows:



JP 51- 136716 shows and discloses the invention substantially as set forth in the claims with possible exception to:

- an external turbine flue gas source for the flue gas source.

In regard to **claim 1-4, 6-14, 16** and **17** for the purpose of providing a suitable alternative flue gas supply for aiding in reducing the formation of NO_x during combustion, it would have

been obvious to a person having ordinary skill in the art to substitute an external turbine flue gas source for the flue gas source (14) of **JP 51- 136716** in view of the teaching of **JP 07-208705**) or **DE 100 62 066**.

In regard to claim 2, since the operating temperature for a given rotary kiln would necessarily depend on numerous interrelated design concerns such as, the overall size and shape of the kiln, the desired operating temperature and/or necessary temperature for treating materials heated therein, to operate a kiln in the claimed temperature range (flue gas of the turbine is 400-800 °C) can be viewed as nothing more than merely a matter of choice in design absent the showing of any new or unexpected results produced therefrom over the prior art of record. Alternatively, regarding claim 2, Official Notice is taken that turbine exhaust gas temperature are known to fall within the claimed temperature range of 400-800 °C, or 752-1492 °F. (See for example, US 6200128: "A typical turbine exhaust gas will have a temperature of about 1000 to 1100.degree. F ...").

In regard to claim 9, Official Notice is taken that it is well known to tangentially orient burner feed connecting tubes to burner tubes so as to aide in creating a swirling motion and to promote fluid feed mixing (see for example **JP 63-159619** (of record)). Thus, in view of that which is well known and for the known purpose, it would have been obvious to a person having ordinary skill in the art to orient the connecting tube tangential in relation to the burner tube.

In regard to claim 11, the burner tube of **JP 51- 136716** is capable of adjustable positioning, at least during installation thereof.

In regard to claim 12, **JP 51- 136716** includes an air fan (13) which would necessarily and inherently provide a relatively cool flow of air supply to the burner tube.

Allowable Subject Matter

Claims 10 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 5, 18 and 19 are allowed.

Conclusion

THIS ACTION IS MADE FINAL

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

USPTO CUSTOMER CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carl D. Price whose telephone number is (571) 272-4880. The examiner can normally be reached on Monday through Friday between 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven B. McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Carl D. Price/

Primary Examiner, Art Unit 3749

cp